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pigeons and that was near Ithaca, about twenty years ago.

Very truly yours,

S. M. RASMUSSEN

**DO WE WANT A GREAT PRIVATE INSTITUTION  
FOR INVENTORS LIKE THE INSTITUTE  
OF FRANCE FOR ARTISTS?**

I AM impressed doubtfully by a pretentious plan which I have seen for a national laboratory for invention and research. I question seriously if inventors want a great, powerful group of men in existence who can do them just as much injury as good by its hasty condemnation of their so-termed "useless" inventions as by helping them with those which certain men, chiefs of proposed bureaus, may see something in.

Let us not forget that Professor Langley and Mr. Graham Bell who backed him were both ridiculed by the three greatest pioneers of their time, Lord Kelvin, Carnegie and Newcomb. Have times really changed so amazingly since then?

Men working in laboratories like that of the Geophysical and Terrestrial Magnetic Survey are virtually research men, given a free hand and told to go ahead, as I understand it, whereas in this proposed institution the inventor is taken in as a partner so to speak in the institution and runs the danger of having his invention black-balled by some committee of the institution when a difference of opinion arises regarding his work.

We must remember further that the institution would be to inventors what the municipal lodging house is to tramps. The institution would serve in a measure as an asylum to which every man who importunes men of wealth to supply him with funds for use in his own way would be committed. If the amount of money subscribed optimistically by private individuals for the purpose of developing new inventions were concentrated in one institution, such an institution would be a colossal affair. Would not the effect of such an institution be to check the generosity of men of means towards individual inventors and make them refer the inventor to that institution just as they have by the thousand escaped their duty in fostering research by referring

the importuning individual to the Rockefeller and the Carnegie Institutions?

The laboratory idea is all right as a place to work in, but let us encourage rather than discourage individual gifts to individual inventors, for no man is big enough not to have a blind side. Let there be a consulting office to which would-be investors in inventions could write and get opinions about inventions, but don't let us shut the door on the inventor by creating the municipal lodging house idea to which those with money will turn in shirking from their duty towards the inventors with whom they come in contact. With conditions as they are, we were getting out the year before the war, I understand, many more inventions than all the other nations in the world combined. Individual willingness to support inventors must be increasing rather than decreasing in America.

When I think of Langley, the Wrights, Curtiss and a host of others, I can not seem to fit them into this plan at all. Is it not true that the Institute of France, which assumed to pass upon the excellence of the work of young artists, turned down the great Rodin's work, and that it was only his supreme genius in sculpture that enabled him to live down the disgrace of its refusal to recognize him, and did he not when they wished later to acknowledge their error, refuse to allow his name to be proposed? There is a similarity between the individualist stimulus which spurs on both the inventor and the artist, and the question might now be raised as to whether a great institute for invention, similar to the Institute of France for artists, should be created, by which "a standard of merit would be placed upon any invention whatever, and its seal of approval would be equivalent to saying whether the invention was good or bad."

I wish to challenge the idea of committee estimation of inventions. There is a danger of no small proportions in it. What body of men can sit and read the volumes of claims of an unending stream of inventors and not become stale, especially if this work continues for years? What is more discouraging than the cold water of a board's decision, even though it

is as we all know who have served on committees, the opinion often of one man concurred in by others too indolent or tired or bored to look into the case thoroughly. How often the most efficient man on the committee is the astute but destructive critic who can see obstacles on every hand so clearly that he can not see the possibilities; who looking down an avenue of trees sees a wall of tree trunks and fails to realize that as you move forward there are wide open spaces between the trees.

It appears to most people a strange fact that army boards so generally turn down new and valuable inventions. General Anson Mills, for example, recounts in his autobiography how his cartridge belt (now universally used in all armies, I understand) "was submitted to every equipment board of the army organized between 1866 and 1879, but so wedded were the authorities to the use of ancestral methods that no board ever made favorable mention of my invention." This is a phenomenon traceable to the environment of committee organization and not to be explained on the ground of what is usually termed boneheadedness, and it is this environment factor which surrounds the proposed institution for invention that appears not to be appreciated by the originators of the scheme.

An institute devoted to a special field of knowledge which hires men to do research along those lines and gives them facilities and supports them is very different from one which covers practically the whole field of human knowledge and proposes to sit in judgment upon the ideas of the poor inventors.

DAVID FAIRCHILD

#### CIRCULAR FREQUENCY

It would frequently be convenient if there were in common use a name for the letter  $n$  which occurs in the equation

$$y = a \cos nt$$

for simple harmonic motion. Mr. Jeans, in his "Theoretical Mechanics," p. 263, calls this  $n$  the *frequency* of the motion. This is unfortunate, because the term "frequency" is usually applied to the quantity  $n/2\pi$ . Professor Lamb, in his "Dynamical Theory of

Sound," p. 10, suggests the term *rapidity*. I recall a few years ago seeing some place the term *Kreisfrequenz*, which suggested that we should perhaps have a satisfactory name for this  $n$  if we were to call it the *circular frequency* of the motion. This term is longer than *rapidity*, but it has an advantage in that it naturally calls to mind that the  $n$  not only is proportional to the frequency of the motion but also represents the angular velocity of an imaginary particle in the reference circle.

ARTHUR TABER JONES

#### SCIENTIFIC BOOKS

*The Conservation of Food Energy.* By HENRY PRENTISS ARMSBY. Philadelphia, W. B. Saunders Co. 1918.

This little book of sixty-five pages contains a vast amount of information concerning the relative values of different feeding substances when they are given to farm animals. The method of estimating these values is new. Armsby states "Aside from the milk requirements of the very young animal, it has been demonstrated to be entirely feasible to produce good yields of milk or well fattened carcasses, not only of cattle and sheep but of swine as well, on a ration containing ample roughage to meet the requirements for maintenance, leaving the concentrates to be applied directly to the production of human food." This is a new view point, for T. B. Wood in England<sup>1</sup> believes that meal made from grain is the chief kind of fodder consumed by pigs. Armsby assumes that the maintenance diet of farm animals is at the expense of coarse fodder, grass, hay, straw, etc., and that the development of food value in the animals may be ascribed to the grain ingested. The grains considered are wheat, corn, barley, rye, oats, rice and buckwheat. When these grains are fed under the above conditions, between 15 and 24 per cent. of their energy may be converted into human food in the bodies of cattle and sheep, and between 36 to 61 per cent. when they are fed to pigs and dairy cows.

<sup>1</sup>"The National Food Supply in Peace and War," Cambridge University Press, 1917.